

later "either by germination or by stretching become cells of normal shape." A direct union of two or more individual cells was also observed, the significance of which was not studied. The authors state that "the life cycle of each species of bacteria studied is composed of several subcycles, showing wide morphological and physiological differences. They are connected with each other by the symplastic stage. Direct changes from one subcycle into another occur, but they are rather rare exceptions." It is obvious that if such life cycles are established for bacteria in general, a new field is opened up in bacteriology.—J. M. C.

Cane sugar and translocation.—BOYSEN-JENSEN¹² concludes that cane sugar plays an important rôle in the germination of pea seeds. In the first stages of germination the cane sugar present in the ungerminated seed is used both as building and respiratory material, as is evident from its reduction in amount during the first few days of the process. In the second stage of germination cane sugar is the translocation form of the starch, as is shown by the following facts: (1) there is a higher concentration in the cotyledons than in the axillary organs; (2) the concentration rises with time in the isolated cotyledons and falls in the isolated axillary organs; (3) only inconsiderable amounts of reducing sugars are present in the cotyledons. The author cites several investigations showing the frequent appearance of cane sugar as the translocation form of starch, and concludes by saying that either monosaccharides or disaccharides may be translocation forms of starch, depending upon the character of the plant part.—WILLIAM CROCKER.

Cabbage yellows.—GILMAN¹³ has investigated this disease and the relation of temperature to its occurrence. It is a wilt disease caused by *Fusarium conglutinans*, which is a facultative parasite living in the soil, and under certain conditions becoming destructive to cabbage. It has a high optimum temperature and is very resistant to drying. Inoculation experiments were largely successful in inducing the disease, the failures being due obviously to variations in the virulence of the cultures and in the susceptibility of the host. Control plants remained entirely free from the disease. The appearance of the characteristic symptoms is dependent upon a temperature of 17–22° C. or above, lower temperatures preventing the occurrence of the disease. Field observations through three seasons confirmed this relation between the occurrence of the disease and high temperature.—J. M. C.

¹² BOYSEN-JENSEN, P., Vorkommen, Bedeutung, und Bildung des Rohrzuckers bei der Keimung von *Pisum sativum*. Jahrb. Wiss. Bot. 56:431–446. 1915. PFEFFER'S Festschrift.

¹³ GILMAN, J. C., Cabbage yellows and the relation of temperature to its occurrence. Ann. Mo. Bot. Gard. 3:25–84. pls. 2. figs. 21. 1916.